

Sea Duck Joint Venture
Annual Project Summary for Endorsed Projects
FY 04 – (October 1, 2003 to Sept 30, 2004)

Project Title: Project #23: Characterization of Beaufort Sea Flyway: Long-tailed ducks (*Clangula hyemalis*) and common eiders (*Somateria mollissima v-nigrum*)

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Partners (FY03): SDJV; USGS, USGS Science Support (SS) Funds; and BP Exploration (AK) Inc. on behalf of Prudhoe Bay Unit owners.

Project Description: Long-term declines of common eiders and long-tailed ducks have been reported in Alaska, including populations on the North Slope. How the birds in these declining populations use the western Beaufort Sea is unclear, and this information is needed to model the potential effects of off-shore oil and gas development on these two species. I used satellite telemetry to characterize migration and to identify wintering and staging areas of common eiders that nest on barrier islands and long-tailed ducks that molt in lagoons along the western Beaufort Sea coast. The study is designed to evaluate differences among years in timing of migration, migration paths, and staging areas birds used in relation to variation in ice distribution and other weather factors and timing of nest initiation and molt.

Objectives: The primary objective of this study is to locate and describe migration corridors, staging habitats, and habitats used by common eiders that nest on barrier islands and long-tailed ducks that molt in coastal lagoons when migrating in fall and spring through the western Beaufort Sea. A secondary objective is to identify and describe areas used by these common eiders throughout the year and identify breeding and wintering areas used by these long-tailed ducks. These data will provide information key to effectively managing these populations of sea ducks.

Preliminary Results (FY04):

Long-tailed Ducks – Ten adult female long-tailed ducks were marked in August 2003 at Point Thomson, western Beaufort Sea coast. Two birds were known to have died within 14 days (the censor period) of surgery. All PTTs that were deployed were programmed to provide data weekly from August 2003 to June 2004 when they were to begin to transmit daily. We were unable to capture the remaining 20 ducks to complete the sample of 30 needed for 2003. Thus, the sample size is inadequate for statistical comparisons between years. However, the general timing of spring migration and winter locations appear similar to that of birds marked in 2002. The results of autumn 2002, winter 2002-2003 and 2003-2004, and spring/summer 2003 are available at the SDJV and USGS, Alaska Science Center web sites; data from spring/summer 2004 will be available after 1 October 2004. The long-tailed ducks marked in 2003 used waters of the western Beaufort Sea from 4 to 6 weeks in autumn; birds were generally present until early to mid-October. Ducks wintered in waters along the east (1) and southwest (1) coasts of

Kamchatka, Russia; Hokkaido Island (1), Japan; Togiak Bay (1), Bristol Bay, Alaska; Uganik Bay (1), Kodiak Island, Alaska; and the eastern waters of Queen Charlotte Island (1), British Columbia, Canada. Spring migration began in March, and hens arrived to nesting areas in June. As with autumn, spring migration was both coastal and overland and protracted. By early August 2004, all birds still alive were in molting areas: 1 duck molted in a wetland on the Seward Peninsula, Alaska; 2 birds nested within 10 km of Point Thomson, then moved to the lagoon system near Point Thomson where they molted during 2003. Of the remaining birds, 1 bird died near Point Thomson by 3 September 2003, then floated on the ice to Big Diomedes by 17 November 2003 and was last located there on 4 March 2004; 1 bird was last located in March 2004 at Hokkaido Island; 1 died on 2 June 2004 in the Penzhinskaya Guba (northwest Kamchatka) during spring migration; 1 was last alive in its wintering location in Togiak Bay on 8 March 2004, then was dead and located inland along the Kuskokwim River on 13 March 2004; and 1 bird arrived to a wetland 3 km northeast of Moses Point, Norton Sound on 28 June 2004 and died there on 7 July.

Common eiders- Thirty common eiders were implanted with satellite transmitters in July 2003. Twelve PTTs were programmed to transmit daily, with an expected battery life of 4 – 5 months, and all provided location data from mid-July until late November 2003 and some into January 2004. The remaining 18 transmitters were programmed to provide locations weekly until about 1 May 2004 after which they were to provide data daily; 17 of 18 provided locations until they returned to the nesting area in June 2004 and 1 bird was shot near Kaktovik (Barter Island, North Slope, Alaska) on 7 June 2004. As expected from other studies with less frequent location data, in autumn common eiders quickly moved through the western Beaufort Sea and over the Chukchi Sea until arriving at staging areas along the north and northeast coasts of the Chukotka Peninsula or to the primary wintering areas along the southern and southeast coasts of the Chukotka Peninsula and St. Lawrence Island. As with the birds marked in previous years, spring migration began as early as March, but most birds first moved from their wintering areas in April. In spring 2004, eiders remained about 1 week to 10 days longer at staging areas than those migrating in 2003. Also, 4 birds migrated to their nesting area in the Beaufort Sea in late May-early June then returned to staging areas along the Chukchi Sea coast until mid-June. Preliminary examination of ice maps and communication with observers at Barrow suggested that spring 2004 was late, and satellite images of the barrier island nesting area showed solid ice when these 4 eiders arrived.

Project Status:

Common eiders – In FY03, thirty satellite transmitters were deployed during July in adult female common eiders nesting on the barrier islands of Simpson Lagoon, Alaska. The last PTT quit providing locations by mid August 2004 (FY04). This completes the sample and data collection of common eiders for this study.

Long-tailed ducks – Twelve transmitters were deployed in adult female long-tailed ducks on 2 August 2004 (FY04) to gather data on fall migration 2004 (FY05). Eighteen transmitters were deployed on 3 – 5 August 2004 (FY04) to gather data on spring/summer migration 2005 (FY05). Of the 30 transmitters deployed, 1 duck died 8

days after marking. The remaining 29 are still providing data (2 – 5 August to 13 September). This completes the sample of long-tailed ducks for this study.

Most of the location data from long-tailed ducks marked in FY04 will be collected in FY05 when birds are expected to begin fall migration (October – November 2004) and in spring/summer (June – August 2005) when birds begin moving toward breeding and molting areas. Locations in winter 2004 – 2005 will also be determined.

15 September 2004